Administration

DEPARTMENT OF PUBLIC WORKS

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December 21, 2003

Dyan Foss
Kaiser-Hill Company
Rocky Flats Environmental Technology Site
10808 Highway 93, Unit, T124A
Golden, CO 80403-8200

Re: Building 371/374 Closure Project Decommissioning Operations Plan Revision, Modification 4, dated December 12, 2003

Dear Ms. Foss:

The City and County of Broomfield appreciates the opportunity to review and provide comments on the *Building 371/374 Closure Project Decommissioning Operations Plan (DOP) Revision 1, Modification 4,* dated December 12, 2003. We applaud the Site for apprising us of potential proposals early on in the decision-making process. What we are disappointed in is the rush that the Site is in to complete the closure project ahead of schedule, thus producing premature proposals and documents for us to formally review. We do not want to impede the closure schedule, but the rush to have approved documents without the basis for the selected remedy is disconcerting to us. We are very disappointed with the rush to draft this document with a preferred remedy alternative without the basic information needed to establish the basis for the proposal. Broomfield considers the proposed DOP to be a document that should be inclusive of explicit information for us to make an informed decision on the proposed plan. Broomfield has fundamental concerns with the lack of information and planning associated with the DOP and feels the proposal is premature. Therefore, due to the lack of information needed for us to make a knowledgeable decision regarding the proposal, we cannot support the revision to the DOP.

At this point in time, the City & County of Broomfield does not support the revision to the B371/374 DOP just as we did not support the B771 proposal. The DOP is deficient in six major areas, and it should be revised to include the vital information needed to validate the proposal. Broomfield has these six major issues associated with the document which include: 1.) methodology to determine amount of radioactive contamination remaining and the potential to allow contamination to approach levels of 100 nCi/g, which is transuranic waste, 2.) alternatives analysis to determine the best demolition method, 3.) placement strategy of material on the contaminated section of the building and compaction of fill material, 4.) groundwater modeling, 5.) air quality, and 6.) lack of stewardship objectives associated with the proposal. The City staff has very thoughtfully and thoroughly reviewed

this draft document and has general comments associated with the draft document. Words in italics are direct quotes from the DOP or other Rocky Flats documents.

Remaining Contamination and Methodology to Determine Contamination Levels

Prior to demolition of a facility, a Pre-Demolition Survey Plan is required and the data determines if the requirements are met. Broomfield is not clear on the objectives to determine if B371 has been adequately characterized prior to demolition of the building. The sampling methodology to determine remaining activity for residual contamination should be clearly defined in the DOP or referenced in an approved Sampling and Analysis Plan (SAP). As a minimum, the SAP or revised DOP should include the size of the averaging area, volume of sample, sampling frequency, instruments used, sampling method, and the QA/QC process for the sampling. We ask that we be provided a copy of the SAP or the revised section of the DOP, which would include the sampling and analysis criteria for our review.

In addition, B371 is a Type III building and requires an Independent Verification and Validation (IVV) by an independent party to ensure an adequate survey and characterization of the building has been performed. The DOP states an IVV may be performed, and Broomfield is concerned this statement deviates from the original commitment DOE has made to perform an IVV of all Type III buildings in the original Facility Demolition Routine Standard Operation Plan (RSOP). The City & County of Broomfield has continually reminded DOE of its initial commitment to perform an IVV for **all Type III buildings**. If residual contamination remains, it is essential the characterization of the facility have an independent party review characterization and associated methodology to confirm the amount of remaining radioactivity.

Per the DOP, *the areas that have not been decontaminated to the unrestricted release criteria and will remain in place after backfilling will be characterized in accordance with a project-specific characterization package prepared in accordance with DPP, DDCP, PDSP, and the Industrial Area Sampling and Analysis Plan. The objective of this characterization effort is to ensure that the nature and extent of contamination is adequately defined and that the material that will be left in place is consistent with the framework for contaminated soil.* We are concerned the soil action levels are being applied for concrete or other materials at the site. The averaging methodology is not clearly defined in the document, and the decision of the sampling protocols should not be deferred to the DPP, DDCPL, or PDSP. To use the Industrial Area Sampling Plan (IA SAP), which is a remediation document for soils, is an inappropriate use of characterizing portions of a facility.

We do not agree surface contamination activity should be averaged by using the total thickness of concrete to determine final survey activity levels. To adequately characterize the buildings, core samples should be taken in areas with the potential of high absorption of radionuclides or hazardous constituents such as Room 1117 (R1117), R1125, R1105, R1119, R1107, R1109, R115, R2317, R2319, R2223, or any canyon area receiving caustic or acidic material or waste. It is totally unacceptable to assume per your handout during the RFCLoG presentation on January 5, that some *of the rooms will be* ***decontaminated to a minimum of 100 nCi/g*** *at the surface (typically the most restrictive limit) and the vast*

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majority of contamination is on the floor, approximately ***43,000,000 nCi/g of activity*** *from WGPu would be left in these rooms.* The handout then states the decontamination will be much lower due to ALARA principles while performing D&D work in the rooms. Clarify how ALARA will be applied in this scenario. The DOP should be revised to include a ceiling for remaining contamination without the use of averaging.

The DOP further states final grade, sampling, and the RFCA Attachments approved June 2003 will dictate which areas require decontamination and which areas can have the contamination fixed and controlled during demolition. Once again, we do not agree the soil action levels should be associated with characterization of a building. Nor do we agree the final grade or RFCA standards should determine what sections of a building should be decontaminated or fixed.

Alternative Analysis to Determine the Best Demolition Method

The DOP bases the preferred alternative on risk to the worker due to increased hours of decontamination of the building. To reduce the labor hours, contamination would remain at depths below six feet that did not exceed 7 nCi/g averaged over the thickness of concrete. The proposal also deviates from prior commitments from DOE to **only use explosives on free-release buildings.** The following two quoted paragraphs from the DOP are very disconcerting and do not provide us with a clear decision process for Alternative 2.

> Per the proposal the document states: *The decision to decommission the 371 cluster buildings is the approved action being conducted in accordance with this DOP. An analysis of risks to workers to decontaminate to unrestricted release criteria the Building 371 and 374 concrete structure that will remain in the subsurface resulted in a determination that decontamination criteria based upon the risk-based concept in the June 2003, modifications to RFCA Attachment 5 Radionuclide Soil Action Levels should be applied for the RSOP. The concrete structure that will remain after demolition that is within 6 feet of the final expected surface grade will meet surface contamination unrestricted release criteria, while concrete below that depth will be decontaminated or removed if it exceeds 7 nCi/g, averaged over the thickness of concrete.*
>
> *The current demolition strategy proposes the use of explosives. Explosives will not be placed in portions of the structure that do not meet the unrestricted release criteria. Additional information on the demolition method, sequence of activities, and quantities and placement strategy for the explosives will be developed as the decommissioning progresses. In accordance with the RSOP for Facility Disposition, the use of explosives will be evaluated for its effects on worker health and safety and the environment, and for its cost-effectiveness, as compared to mechanical demolition techniques. Site personnel, the regulatory agencies, stakeholders, and the explosive contractor will be involved in the evaluation process.*

There appears to be contradicting information in the DOP and information provided to us in previous meetings pertaining to the amount of contamination associated with the building. Alternative 1, which decontaminates the facility to free-release, would require **21,174 hours of additional person-hours** for hydrolasing but 2,520 fewer person-hours for demolition

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complexity, which results in additional 18,654 person-hours in comparison with Alternative 2. Broomfield is not clear how the additional person-hours were derived without having the final characterization for the facility performed. The extensive person-hours infer the building is highly contaminated. Yet, during previous meetings we have been informed there is minimal contamination in the building, therefore minimal contamination will remain at depths greater than six feet. The Site has an experienced workforce that has proven it can safely decontaminate buildings and equipment. We feel their safety record and ability to perform the objectives to free-release facilities can be safely obtained, therefore minimizing long-term stewardship costs and obligations. Without the details of the alternative analysis and the basis for risk to the worker, we cannot compare the two proposals and conclude why Alternative 2 would be the preferred method. Due to the potential spread of contamination that may occur in Alternative 2, we currently conclude the potential environmental impacts outweigh the basis for the preferred alternative proposal in this analysis.

Broomfield is concerned the technical feasibility section of Alternative 2 has not been adequately addressed. Provide us with additional information to ensure the proposed method for Alternative 2 is a technically feasible proven method. We request additional information pertaining to the contractor's experience with use of explosives on facilities with remaining radioactive or hazardous constituents.

We do not agree with the Operation and Maintenance statement on page 7, which states: *Stewardship costs associated with this alternative will be approximately the same as those in Alternative 1.* Any time contamination is allowed to remain in the environment versus source removal, the remaining contamination will increase monitoring and surveillance costs along with additional costs to maintain engineered and institutional controls.

Provide the City and County of Broomfield with a detailed analysis of the alternatives. In addition, clarify why the methodology of final survey to be performed on the building will be different for Alternative 1 and Alternative 2.

Placement Strategy of Material on the Contaminated Section of the Building and Compaction of Fill Material

The City and County of Broomfield is concerned with the use of soft words such as "**anticipated**" and "**generally**" when discussing the decontamination approach for the building. Revise the DOP to state if surficial contamination is encountered, it **shall be removed**. If any contamination exceeds 7 nCi/g, **it shall be removed.** We are concerned the soft language allows for additional contamination to remain. Broomfield has always been concerned with the lack of having a clearly defined process to evaluate decisions to determine if and when contamination should be removed or allowed to remain in place. Any time contamination greater than 1 nCi/g is encountered during remediation, we ask that we be kept apprised of the location, depth, and final evaluation and decision to determine if further remediation is required.

We understand the process to place fill material on the remaining contaminated sections of the building has not been finalized and may change from the criteria identified in the DOP.

We are concerned that there is no technically proven method to ensure how and if areas of fixed or removable contamination will be protected during demolition activities short-term and how the fixative will function long-term. We are also very concerned with the lack of detail of the process to ensure potential void spaces will be mitigated. We have the following concerns with the potential proposed conditions:

- Averaged contamination does not provide an actual depiction of potentially high levels of radioactive contamination in this area;
- The use of paints and commercial encapsulants have not been proven long-term methods to contain contamination, the contamination bleeds through the paint and this has been proven by the many layers of paint we have seen over contaminated sections in the plutonium buildings;
- The use of the encapsulants may not contain the contamination during the use of explosives because the encapsulant only covers the surface material;
- The use of soil and/or gravel over the contaminated areas may or may not control the release of contamination during the demolition of the facility using explosives;
- The use of gravel at these depths may generate a new groundwater pathway.

With the potential use of explosives, it is not apparent how backfill operations will be conducted to ensure the area has been compacted per specifications to prevent subsidence and provide a stable foundation for this area. Clarify how the reinforced steel will be removed from the concrete used as fill in this area. How can the statement be made there will be generally be two flat surfaces and they will not exceed 12 inches in thickness? It will be virtually impossible to compact soils with pieces of concrete this thick. The DOP suggests the concrete material will be layered with a thickness not to exceed two feet. This proposal seems very labor intensive and could pose an additional risk to the worker, which was not identified in the alternative analysis. To state *this approach would significantly decrease cost by eliminating the steps involved with loading and transporting debris to the PA stockpiling area, size reduction at that location, and loading and transportation back to a fill site* is very misleading. Crushers are very mobile and if B371 is the last building to come down, it would make sense to move the crusher, therefore reducing the transportation costs. Once again, long-term stewardship implications have not been considered. If the concrete is rubbleized, a method specification can be obtained for fill in a flat area to ensure subsidence does not occur. The method specification for embankments and fill using coarser materials would not apply to the B371 demolition project. Broomfield does not support this proposed compaction method, nor does it support the use of a visual inspection to inspect for deflection of the fill in this area. Please see additional comments in the stewardship section of this letter.

Groundwater Modeling

For the City and County of Broomfield to make an informed decision to even allow contaminated sections of the building to remain in place, we need information identifying the current groundwater conditions in this area and potential future conditions based on modeling. The DOP should be revised to include the contaminants of concern in this area, migration pathways and movement, and historical data to identify groundwater levels. The

groundwater wells should be identified, especially the D&D wells with associated baseline data. A map of the wells should also be included in the DOP as an attachment.

Revise the DOP to include information pertaining to groundwater modeling and the predicted results of the water modeling specific to the B371/374 project. If groundwater management systems will be required such as a french drain, the document should include the engineering of the system and the remediation objectives of the system to ensure the stability of the area and control of contaminated plumes. There has been confusion from information provided by the Site and information provided in the document as to whether modification/disruption of the foundation drains and/or groundwater flow through areas punched through the B371/374 superstructure should occur. The document further states:

> *Based upon the completion of groundwater modeling, groundwater controls, such as the installation of a french drain to complement the footer drains, may be installed to minimize the possibility of groundwater flow over the remaining portions of the basement slab and formation of seep that could lead to erosion of the backfill and graded soils covering the slab. The goal of groundwater controls is to minimize the possibility of erosion causing any of the remaining portions of the building to become uncovered, i.e., to maintain the 3-foot depth.*

As previously mentioned, we are concerned with the uncertainties associated with the hydrology in this area and the potential for contaminant migration in this area. Without monitoring to ensure contaminants are not migrating, we have no assurances surface water quality will not be negatively impacted in Walnut Creek.

Broomfield has the same concerns with this proposal as we had with the B771 proposal. The DOP states there is a possibility of a surface seep of groundwater forming on the soil fill within the building footprint. Drainage will divert the flow, and the disposition of the groundwater is not defined. If the groundwater is diverted to one single seep, this should be considered a new point-source and must be monitored for water quality.

The final issue associated with the groundwater modeling is the potential migration of actinides in areas with VOC contamination. Based on actinide migration to greater depths than what we expected on the 903 Pad, further modeling should be performed to address groundwater plumes contaminated with VOCs and actinides. Modeling should be performed to address all the contaminants of concern in this area and the potential holistic migration of the contaminants and degradation of VOCs. Once adequate groundwater modeling has been performed to dictate the requirements for a water management system to ensure surface water quality, we will be able to provide an informed evaluation. The additional information will help us determine if the superstructure needs to be free-released or not and if explosives should be used.

Air Quality

Once again, soft language is used in the document when addressing air quality monitoring during demolition of the building. Knowing concrete is a porous material and the walls in this building may be as thick as five or six feet, we have no assurances radioactive contamination has not seeped into the walls and floors of the building, especially in areas

which contained acidic or caustic solutions. Broomfield is adamant close-in air monitoring should occur during the demolition of the building for plutonium, americium, and beryllium as a minimum. The air monitoring criteria should be included in the Integrated Monitoring Plan (IMP) along with the identified data quality objectives.

Broomfield is very concerned the document states: *charges will only be placed in portions of the structure that meet the unrestricted release criteria.* The DOP does not address the criteria for dropping sections of the structure. Revise the document to include the specifics of placing the charges, minimum distance to any area with contamination, and state **any area to be dropped utilizing explosives will meet the free-release criteria.** We would like to continue the dialogue pertaining to the use of explosives if additional close-in air monitoring is performed.

The language used in the air quality section is taken from the generic air quality section of the IMP. With the use of explosives, how can mitigating measures for air quality be evaluated to respond to environmental conditions? With the use of explosives, air quality impacts will be immediate, and there will be no opportunity to evaluate or mitigate the action.

Beryllium is a contaminant of concern and may impact air quality. The building contained beryllium and should be monitored for this constituent. Revise the DOP and the IMP to include air monitoring for beryllium.

Broomfield continues to address the issue of maintaining the opacity rules. To evaluate the rules, a person has to be certified to ensure the standards are being met. Revise the document to include a certified opacity person will ensure the rules are being met.

Stewardship

Broomfield is very disappointed the Site has taken a step backwards and has excluded long-term stewardship from the DOP. We once again voice our concern with the lack of detail addressing long-term stewardship obligations and the incorporation of stewardship when determining a remedy. Had stewardship been a key deciding factor for the two proposed alternatives, we may have had an alternate preferred proposal. Broomfield has worked diligently to ensure each remediation proposal has had a stewardship section and now we are faced with a document that does not include stewardship, but rather defers it to future documents.

We are being asked to allow unknown amounts of radioactive contamination to remain on-site without knowing the long-term stewardship implications. In addition, DOE is not identifying their long-term obligations to ensure protection of human health and the environment. Revise the document to include as a minimum:

- Identification of groundwater wells within the footprint of the area and associated map;
- Identification of contaminants of concern in the groundwater;

- Assurances the D&D wells will continue to monitor potential migration of contaminants in the area (plutonium, americium, VOCs, and metals) for a period of time longer than five years after demolition as identified in the IMP;
- Identification of the water management system, if required, based on the remaining super structure and groundwater modeling;
- Identification of the surface water management criteria, monitoring and surveillance;
- Identification of actions to be taken in the event a seep out-crops in this area;
- Identification of the proposed degree of slope for the area to ensure minimum erosion occurs;
- Identification of both short-term and long-term surveillance for the area;
- Identification of institutional controls for the area;
- Contingency Plan in the event the superstructure becomes visible or subsidence occurs within the footprint of the area;
- Identification of Applicable or Relevant and Appropriate Requirements (ARARs);
- Identification that Close-out Reports and the Administrative Record will be maintained post-closure at the College Hill Library.

Thank you for the opportunity to comment on this crucial document. The City and County of Broomfield expects that we will continue to be involved, informed, and allowed to participate in any final decisions pertaining to the B371/374 demolition, associated groundwater modeling, or use of explosives for this area. We look forward to working with you to try to resolve our issues. We will work with the Site to revise the IMP to address the criteria for air, groundwater, surface water, and ecological surveillance and monitoring. We hope to agree upon a safe method for demolition of the B371/374 facility with minimum short-term and long-term impacts to human health and the environment. If you have any questions, please feel free to call Shirley Garcia, of my staff, at 303-438-6329.

Sincerely,

Dorian Brown
Director of Public Works

pc: Gary Brosz, City & County of Broomfield City Council
Lori Cox, City & County of Broomfield Council
Mike Bartleson, City of Broomfield
Kathy Schnoor, City of Broomfield
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